h

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,832	02/11/2004	Ikuya Yagisawa	16869P-105400US	5908

20350 7590 04/16/2007

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
SURYAWANSHI, SURESH	
ART UNIT	**PAPER NUMBER**
2115	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/777,832	YAGISAWA ET AL.	
	Examiner	Art Unit	
	Suresh K. Suryawanshi	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/27/07 amendments*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-21 are presented for examination.

2. The text of those sections of Title 35 U.S. Code not included in this action can be found in the prior office action.

3. Claim 6 was objected to because of the following informalities: "receives from" should have been "receives an instruction from" at line 3. Appropriate correction is required.

4. Claims 1-2, 4-5, 7-8, 10-11, 14-15 and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Guha et al (US Patent 7,035,972; hereinafter Guha).

5. As per claim 1, Guha discloses a storage system connected to a computer comprising:

at least one logical unit including at least one disk device [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63]; and

a controller for executing a read processing or a write processing of data having been stored or to be stored in said logical unit which is a destination of a read request or a write request, in response to said read request or write request transmitted from said computer [Fig. 1; Controller 30; col. 2, lines 23-29; col. 7, lines 50-53; col. 9, lines 22-25; via the controller a computer or a host system or a user communicates with a disk],

wherein said controller receives an instruction from said computer to turn on or off a disk device corresponding to said logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein, based on said instruction, said storage system turns on or off the disk device corresponding to the logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

6. As per claim 7, Guha discloses a computer system comprising:

a computer [Fig. 12, 15; col. 2, lines 23-29; col. 9, lines 22-25];

a storage system including a plurality of logical units comprising disk devices [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63]; and

a controller for executing a read processing or a write processing of data having been stored or to be stored in a logical unit of said storage system which is a destination of a read request or a write request, in response to said read request or write request transmitted from said computer [Fig. 1; Controller 30; col. 2, lines 23-29; col. 7, lines 50-53; col. 9, lines 22-25; via the controller a computer or a host system or a user communicates with a disk],

wherein said controller provides said storage system with an instruction to turn on or off a disk device corresponding to said logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein said storage system receives said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured

to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein said storage system turns on or off said disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

7. As per claim 14, Guha discloses A computer system including a computer program product for said computer system comprising a computer [Fig. 12, 15; col. 2, lines 23-29; col. 9, lines 22-25] and a storage system having a plurality of logical units comprising disk devices [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63], said computer program product comprising:

a code for said computer to provide said storage system with an instruction to turn on or off a disk device corresponding to said logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said storage system to receive said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said storage system to turn on or off a disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical units; and a computer readable storage medium for storage codes [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

8. As per claim 2, Guha discloses

a first logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63]; and

a second logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63],

wherein said storage system receives an instruction from said computer to turn on a disk device corresponding to said second logical unit when writing data to be written to said first logical unit from said computer to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk that is in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

wherein said storage system turns on a disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk that is in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said storage system writes data from said first logical unit to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

wherein, upon completion of writing data to said second logical unit from said first logical unit, said storage system receives an instruction from said computer to turn off said disk

device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task]; and

wherein said storage system turns off said disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering off a disk that is not in use].

9. As per claim 4, Guha discloses

wherein computer writes or reads data, said storage system receives an instruction to turn on or off a disk device corresponding to a logical unit storing data to be written or read from said computer [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein said storage system turns on or off said disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical

units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

10. As per claim 5, Guha discloses

a first logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63]; and

a second logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63],

wherein said storage system receives an instruction from said computer to turn on a disk device corresponding to said first logical unit for writing data [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk that is in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said storage system turns on said disk device corresponding to said logical unit independently of disk devices corresponding to the other logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on

only a disk that is in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein, while said computer is writing data to said first logical unit, said storage system receives an instruction from said computer to turn on a disk device corresponding to said second logical unit for writing data next [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

wherein said storage system turns on a disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein, while said computer completes writing data to said first logical unit and is writing data to said second logical unit, said storage system receives an instruction from said computer to turn off said disk device corresponding to said first logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25;

powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task]; and

wherein said storage system turns off said disk device corresponding to said first logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task].

11. As per claim 8, Guha discloses

wherein said storage system has a first logical unit and a second logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63];

wherein said computer instructs said storage system to turn on a disk device corresponding to said second logical unit when said storage system writes data to be written to said first logical unit from said computer to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk that is in use; the system is configured to individually control the power to each of

the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

wherein said storage system turns on said disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk that is in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said storage system writes data to said second logical unit from said first logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

wherein, upon completion of writing data to said second logical unit from said first logical unit, said computer instructs said storage system to turn off said disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task]; and

wherein said storage system turns off said disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering off a disk that is not in use].

12. As per claim 10, Guha discloses

wherein, when writing or reading data, said computer instructs said storage system to turn on or off a disk device corresponding to a logical unit storing data to be written or read [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task];

wherein said storage system receives said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task]; and

wherein said storage system turns on or off said disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical

units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task].

13. As per claim 11, Guha discloses

wherein said storage system has a first logical unit and a second logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63];

wherein said computer instructs said storage system to turn on a disk device corresponding to said first logical unit for writing data [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on a disk];

wherein said storage system turns on said disk device corresponding to said logical unit independently of disk devices corresponding to the other logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task];

wherein, while writing data to said first logical unit in said storage system, said computer instructs said storage system to turn on a disk device corresponding to said second logical unit for writing data next [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

wherein said storage system turns on said disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein, while said computer completes writing data to said first logical unit and is writing data to said second logical unit, said computer instructs said storage system to turn off said disk device corresponding to said first logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk of the first logic unit when it is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein said storage system turns off said disk device corresponding to said first logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

14. As per claim 15, Guha discloses

wherein said storage system has a first logical unit and a second logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63]; and

wherein said computer program product further comprises: a code for said storage system to receive an instruction from a computer to turn on a disk device corresponding to said second logical unit when writing data to be written to said first logical unit from said computer to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

a code for said storage system to turn on a disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on a disk drive on the second logic unit 60];

a code for said storage system to receive an instruction from said computer to turn off a disk device corresponding to said second logical unit upon completion of writing data to said second logical unit from said first logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk of the second logic unit when it is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit]; and

a code for said storage system to turn off a disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk of the second logic unit].

15. As per claim 17, Guha discloses

wherein said computer program product further comprises: a code for said computer, when writing or reading data, to instruct said storage system to turn on or off a disk device

corresponding to a logical unit storing data to be written or read [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task];

a code for said storage system to receive said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task]; and

a code for said storage system to turn on or off a disk device corresponding to said logical unit based on said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task].

16. As per claim 18, Guha discloses

wherein said storage system has a first logical unit and a second logical unit [Fig. 1; logical unit 50 and 60 comprising a plurality of disk devices; col. 7, lines 54-63]; and

wherein said computer program product further comprises: a code for said computer to instruct said storage system to turn on a disk device corresponding to said first logical unit for writing data [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on a disk the logic unit 50 for writing data];

a code for said storage system to turn on said disk device corresponding to said logical unit independently of disk devices corresponding to the other logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task];

a code for said computer to instruct said storage system to turn on a disk device corresponding to said second logical unit for writing data next while writing data to said first logical unit in said storage system [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer; inherent to a RAID system writing data from one logical unit to another logical unit];

a code for said storage system to turn on a disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said computer to instruct said storage system to turn off said disk device corresponding to said first logical unit while said computer completes writing data to said first logical unit and is writing data to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use]; and

a code for said storage system to turn off said disk device corresponding to said first logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

17. Claims 3, 6, 9, 12, 13, 16, 19 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guha et al (US Patent 7,035,972; hereinafter Guha).

18. As per claim 3, Guha discloses

wherein said storage system receives an instruction from said computer to turn on a disk device corresponding to said second logical unit before said backup server reads data from said second logical unit [Fig. 1; col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk of the second logic unit 60; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said storage system turns on said disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk of the second logic unit 60 independent of the first logic unit 50; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein, upon completion of reading data from said second logical unit to said backup server, said storage system receives an instruction from said computer to turn off said disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 --

col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task]; and

wherein said storage system turns off said disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

Guha does not expressly disclose about a backup server connected to the system. However, the disclosed storage system by Guha can be connected to any host computer including a backup server as shown in figure 1 and 11 and disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col. 9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a backup server. Moreover, having a backup server connected to the storage system clearly make sense as the storage system provides a large storage area for storing data.

19. As per claim 6, Guha discloses

wherein said storage system receives from said computer to turn on or off a disk device corresponding to a logical unit specified by a user from said management terminal[col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein said storage system turns on or off said disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

Guha does not expressly disclose about a management terminal connected to the system. However, the disclosed storage system can be connected to any terminal including a management terminal as disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col. 9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

connect a management terminal. Moreover, having a management terminal will clearly provide the benefit of monitoring and controlling the system remotely.

20. As per claim 9, Guha discloses

wherein said computer system has a backup server connected to said storage system [Fig. 11, 12, 15; col. 2, lines 23-29; col. 9, lines 22-25; inherent to a RAID implemented system wherein a host computer can be a backup server];

wherein said computer instructs said storage system to turn on a disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk that is in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said storage system turns on said disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk that is in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said computer instructs said storage system to back up data [Fig. 11; inherent to the system having a backup server];

wherein said storage system backs up data from said second logical unit to said backup server [Fig. 11; inherent to the system having a backup server including a RAID system];

wherein, upon completion of reading data from said second logical unit to said backup server, said computer instructs said storage system to turn off said disk device corresponding to said second logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use]; and

wherein said storage system turns off said disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task].

Guha does not expressly disclose about a backup server connected to the system. However, the disclosed storage system by Guha can be connected to any host computer including a backup server as shown in figure 1 and 11 and disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col.

9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a backup server. Moreover, having a backup server connected to the storage system clearly make sense as the storage system provides a large storage area for storing data.

21. As per claim 12, Guha discloses

wherein said computer instructs said storage system to turn on or off a disk device corresponding to a logical unit specified by a user from said management terminal [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said storage system receives said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein said storage system turns on or off said disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

Guha does not expressly disclose about a management terminal connected to the system. However, the disclosed storage system can be connected to any terminal including a management terminal as disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col. 9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a management terminal. Moreover, having a management terminal will clearly provide the benefit of monitoring and controlling the system remotely.

22. As per claim 13, Guha discloses

wherein, when receiving an instruction to protect data stored in a logical unit, said computer instructs said storage system to turn off a disk device corresponding to said logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk; the system is configured to individually control the power to

each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein, when receiving an instruction not to protect data stored in a logical unit, said computer instructs said storage system to turn on a disk device corresponding to said logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

wherein said storage system receives said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

wherein said storage system turns on or off said disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

Guha does not expressly disclose about a management terminal connected to the system. However, the disclosed storage system can be connected to any terminal including a management terminal as disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col. 9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a management terminal. Moreover, having a management terminal will clearly provide the benefit of monitoring and controlling the system remotely.

23. As per claim 16, Guha discloses

wherein said computer program product further comprises: a code for said computer to instruct said storage system to turn on a disk device corresponding to said second logical unit [Fig. 1; col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on only a disk of the second logic unit 60; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said storage system to turn on a disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [Fig. 1; col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-

25; powering on only a disk of the second logic unit 60 independent of the first logic unit 50; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said computer to instruct said storage system to back up data [Fig. 11; inherent to the system having a backup server];

a code for said storage system to back up data from said second logical unit to said backup server [Fig. 11; inherent to the system having a backup server including a RAID system; Fig. 1; first logic unit 5 and second logic unit 60];

a code for said computer to instruct said storage system to turn off a disk device corresponding to said second logical unit upon completion of reading data from said second logical unit to said backup server [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use]; and

a code for said storage system to turn off a disk device corresponding to said second logical unit independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk that is not in use; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer upon completion of a task].

Guha does not expressly disclose about a backup server connected to the system. However, the disclosed storage system by Guha can be connected to any host computer including a backup server as shown in figure 1 and 11 and disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col. 9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a backup server. Moreover, having a backup server connected to the storage system clearly make sense as the storage system provides a large storage area for storing data.

24. As per claim 19, Guha discloses

wherein said computer program product further comprises: a code for said computer to instruct said storage system to turn on or off a disk device corresponding to a logical unit specified by a user from said management terminal [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said storage system to receive said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

a code for said storage system to turn on or off said disk device corresponding to said logical unit based on said instruction independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

Guha does not expressly disclose about a management terminal connected to the system. However, the disclosed storage system can be connected to any terminal including a management terminal as disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col. 9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a management terminal. Moreover, having a management terminal will clearly provide the benefit of monitoring and controlling the system remotely.

25. As per claim 20, Guha discloses

wherein said computer program product further comprises: a code for said computer, when receiving an instruction to protect data stored in a logical unit, to instruct said storage system to turn off a disk device corresponding to said logical unit [col. 2, lines 23-29; col. 4,

lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering down a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said computer, when receiving an instruction not to protect data stored in a logical unit, to instruct said storage system to turn on a disk device corresponding to said logical unit [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer];

a code for said storage system to receive said instruction [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer]; and

a code for said storage system to turn on or off a disk device corresponding to a logical unit based on said instruction independently of disk devices corresponding to the other logical units [col. 2, lines 23-29; col. 4, lines 21-41; col. 5, line 62 -- col. 6, line 4; col. 7, lines 54-63; col. 9, lines 22-25; powering on or off a disk; the system is configured to individually control the power to each of the disks and clearly it is done in view of instructions received via a user or a host system or a computer].

Guha does not expressly disclose about a management terminal connected to the system. However, the disclosed storage system can be connected to any terminal including a management terminal as disclosed in the background that RAID storage subsystems typically connected to a host computer or user [col. 2, lines 23-29; col. 9, liens 22-25]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect a management terminal. Moreover, having a management terminal will clearly provide the benefit of monitoring and controlling the system remotely.

26. As per claim 21, Guha discloses the invention substantially. Guha does not expressly disclose that the instruction is a ModeSelect command of SCSI issued from the computer. However, Guha clearly mentions the invention can be implied without limitation to other types of controllers and interconnects, such as SCSI [col. 17, lines 35-37]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention for SCSI type controller and interconnect and thus utilize the ModeSelect command of SCSI issued from the computer.

Response to Arguments

27. Applicant's arguments filed 2/27/07 have been fully considered but they are not persuasive.

28. In the remarks, applicants argued in substance that (1) claim 1 recites the use of "logical units." As a result, the controller turns on or off the power for all the disks in a particular unit. The Guha reference does not appear to address logical units. Rather, it speaks in terms of other disk drives but not in terms of other disk drives outside of the logical unit. Furthermore, it turns on a single disk and does not turn on all disks for a logical unit.

29. As to point (1), claim 1 recites the use of logical units, but claim 1 **does not** recite that the controller turns on or off the power for **all the disks** in a particular unit [emphasis added]. Claim 1 recites at line 7, "wherein said controller receives an instruction from said computer to turn on or off **a disk device** corresponding to said logical unit" [emphasis added]. Guha expressly discloses powering on or off a disk of a logical unit. Guha clearly discloses having at least two logical units [Fig. 1; col. 7, lines 54-63]. Guha calls these two logical units as two subsets. Therefore, Guha does appear to address logical units. Guha clearly speaks of other disk drives outside of the logical unit [col. 7, lines 54-63; the disk drives in one of the subsets are powered on, while the disk drives in the other subset are powered down]. Further, Guha also discloses that Fig. 1 has two subsets of disk drives one of which is powered on and one of which is powered off [col. 8, lines 13-15; clearly indicating the possibility of turning on or off all disks for a logical unit]. Moreover, a logical unit is a primary component of a storage area network (SAN)

wherein the invention disclosed by Guha is directly related to the storage area network [col. 1, lines 23-34]. The logical unit is a type of NAU (network addressable unit or network access unit) that enables end users to communicate with each other to gain access to the storage area network resources. Guha calls a logical unit as a subset containing more than one disk drives or devices.

Conclusion

30. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

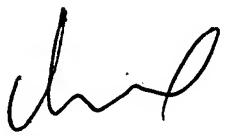
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suresh K. Suryawanshi whose telephone number is 571-272-3668. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SKS



CHUN CAO
PRIMARY EXAMINER